

# USE OF VOLUME BRAGG GRATINGS FOR THE CONDITIONING OF LASER EMISSION CHARACTERISTICS

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Applicant(s):

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- European: H01S3/08D2; H01S5/14B; H01S5/40H2D

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Also published as:

WO2005013439 (A2)  
WO2005013439 (A3)  
EP2034570 (A1)  
EP1649564 (A2)  
EP1649564 (A4)

more >>

Abstract not available for JP 2007527616 (T)

Abstract of corresponding document: **WO 2005013439 (A2)**

Apparatus and methods for altering one or more spectral, spatial, or temporal characteristics of a light-emitting device are disclosed. Generally, such apparatus may include a volume Bragg grating (VBG) element that receives input light generated by a light-emitting device, conditions one or more characteristics of the input light, and causes the light-emitting device to generate light having the one or more characteristics of the conditioned light.

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(19) 日本国特許庁(JP)

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(11) 特許出願公表番号

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<b>HO 1 S 5/068 (2006.01)</b>	HO 1 S 5/068	5 F 1 7 3
<b>HO 1 S 5/065 (2006.01)</b>	HO 1 S 5/065	
<b>HO 1 S 5/14 (2006.01)</b>	HO 1 S 5/14	

審査請求 有 予備審査請求 未請求 (全 34 頁)

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(86) (22) 出願日	平成16年7月2日(2004.7.2)	(74) 代理人	100104411 弁理士 矢口 太郎
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(86) 国際出願番号	PCT/US2004/021491	(74) 代理人	100099656 弁理士 山口 康明
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(87) 国際公開日	平成17年2月10日(2005.2.10)		最終頁に続く
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(32) 優先日	平成15年7月3日(2003.7.3)		
(33) 優先権主張国	米国 (US)		
(31) 優先権主張番号	60/564,526		
(32) 優先日	平成16年4月22日(2004.4.22)		
(33) 優先権主張国	米国 (US)		

(54) 【発明の名称】 レーザー発光特性調整のためのポリウム・ブラッグ・グレーティングの使用

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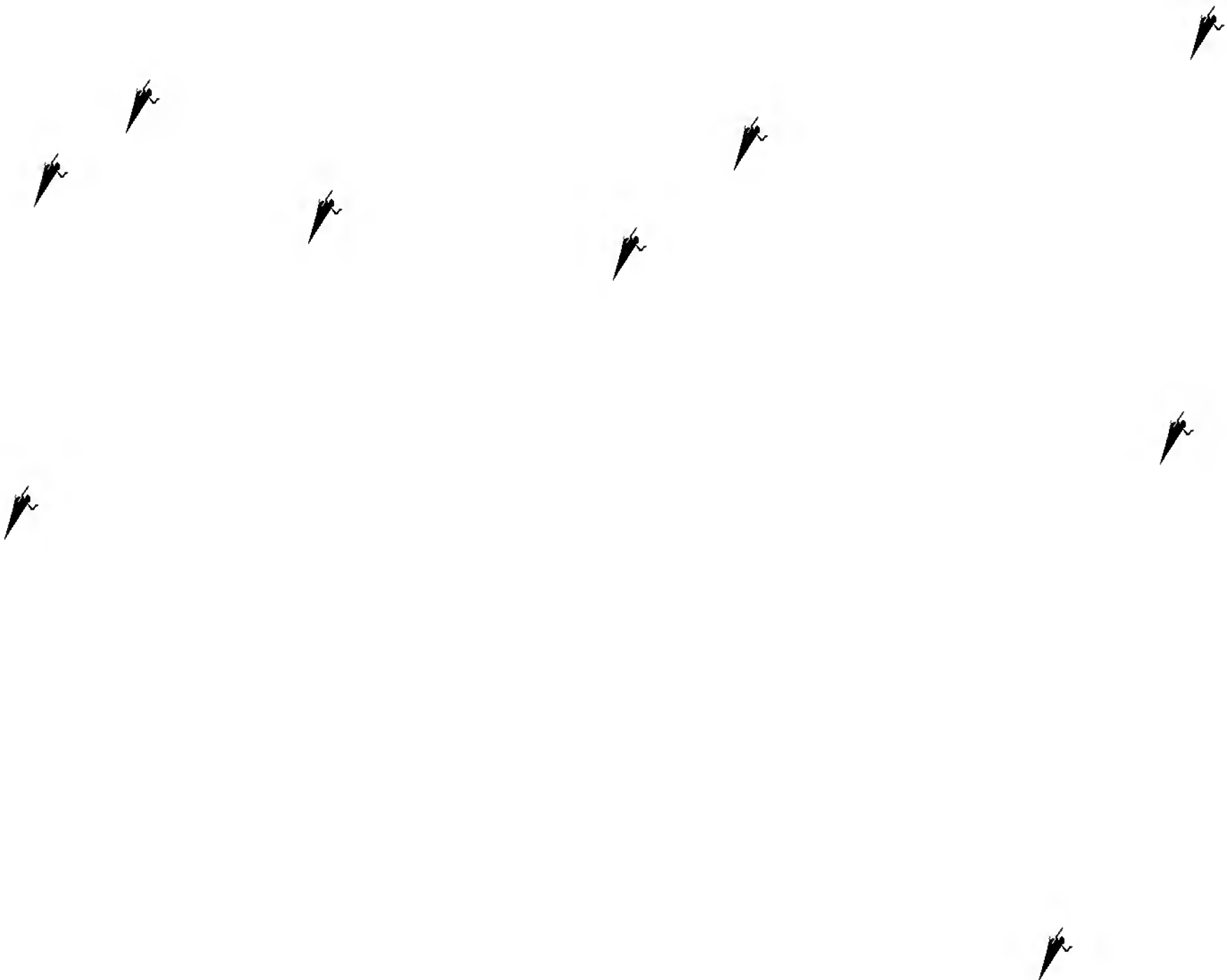
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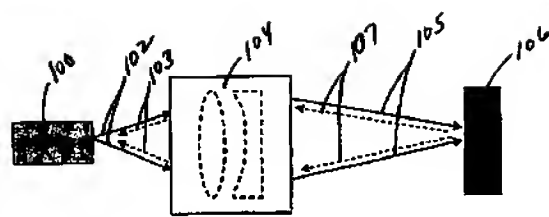


FIG. 1A

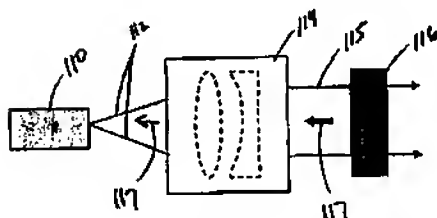


FIG. 1B

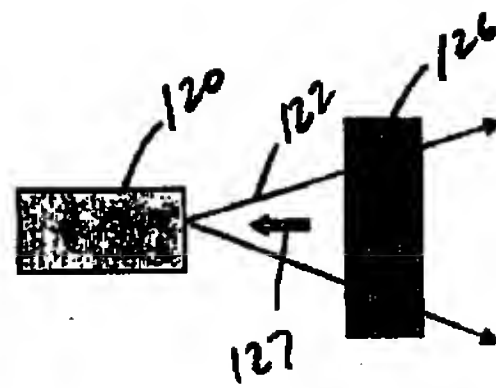


FIG. 1C



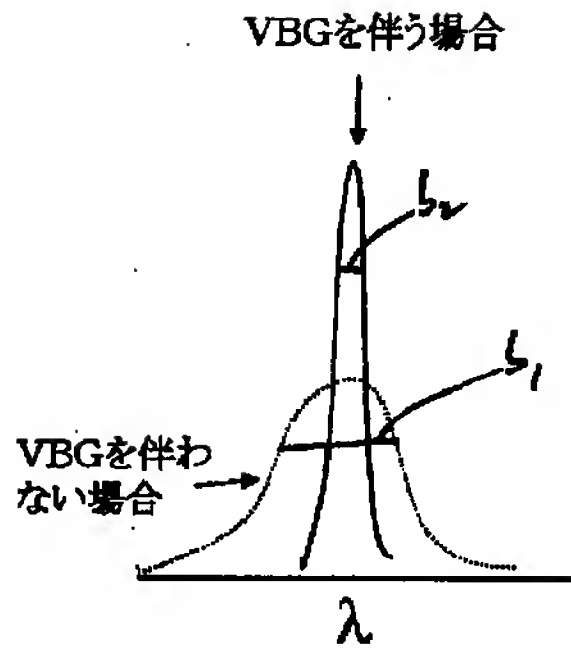


FIG. 1D

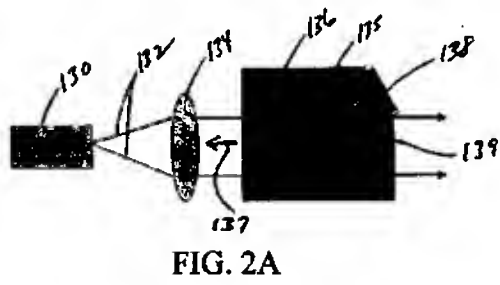


FIG. 2A

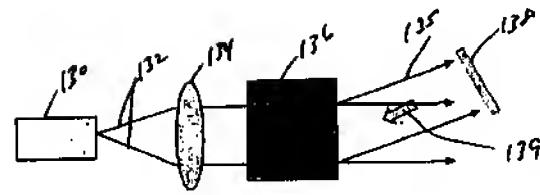


FIG. 2B

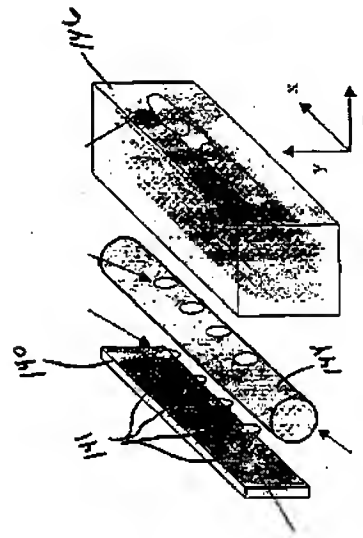


FIG. 3

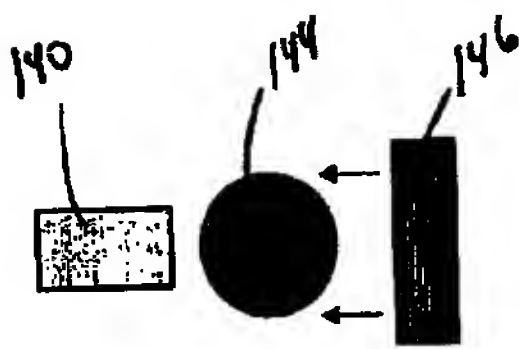


FIG. 4A

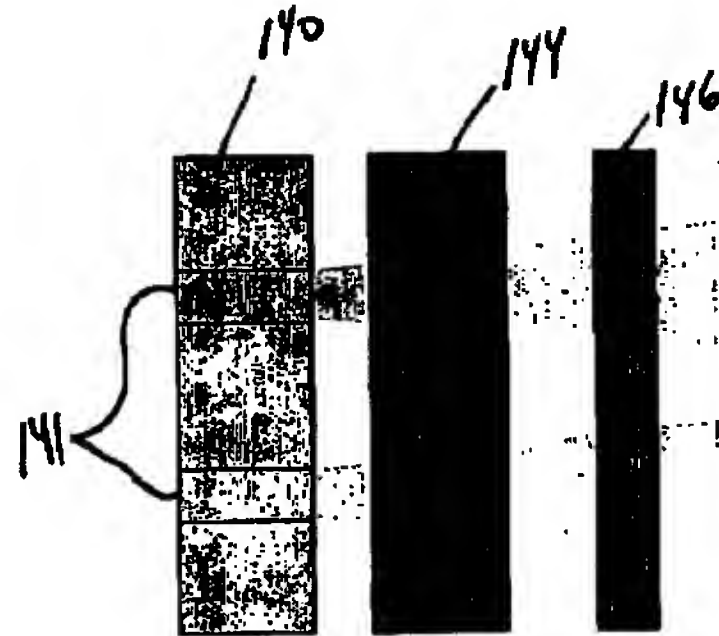
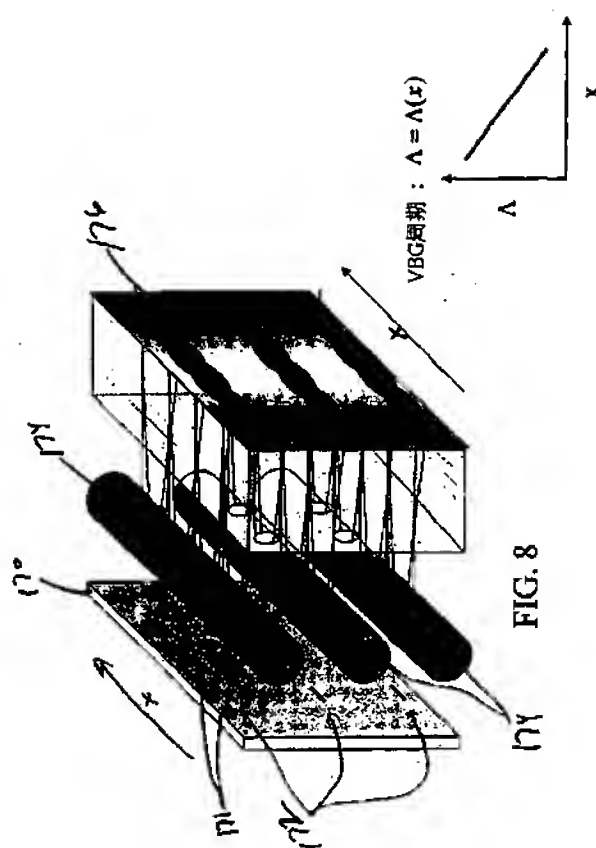
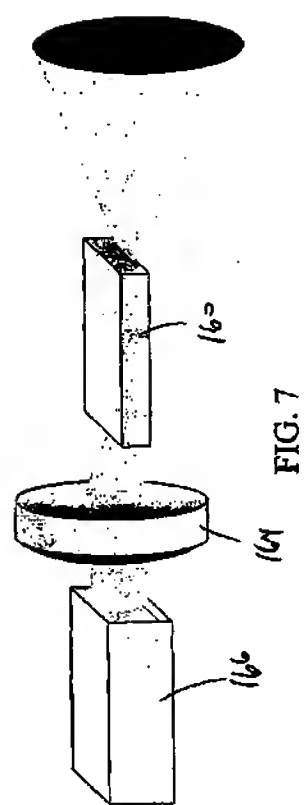
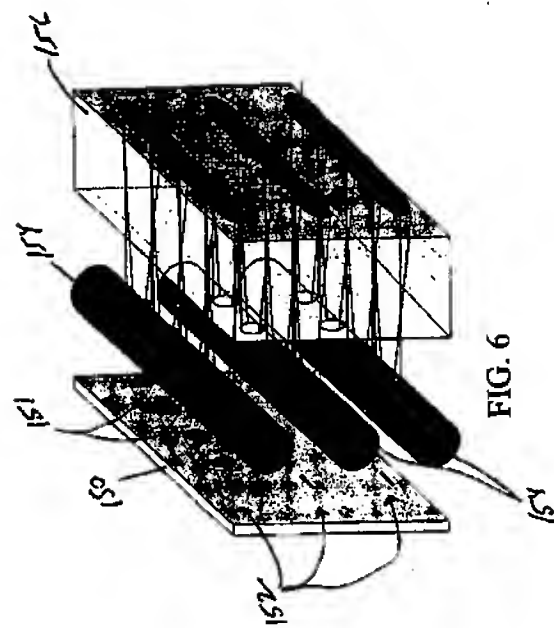
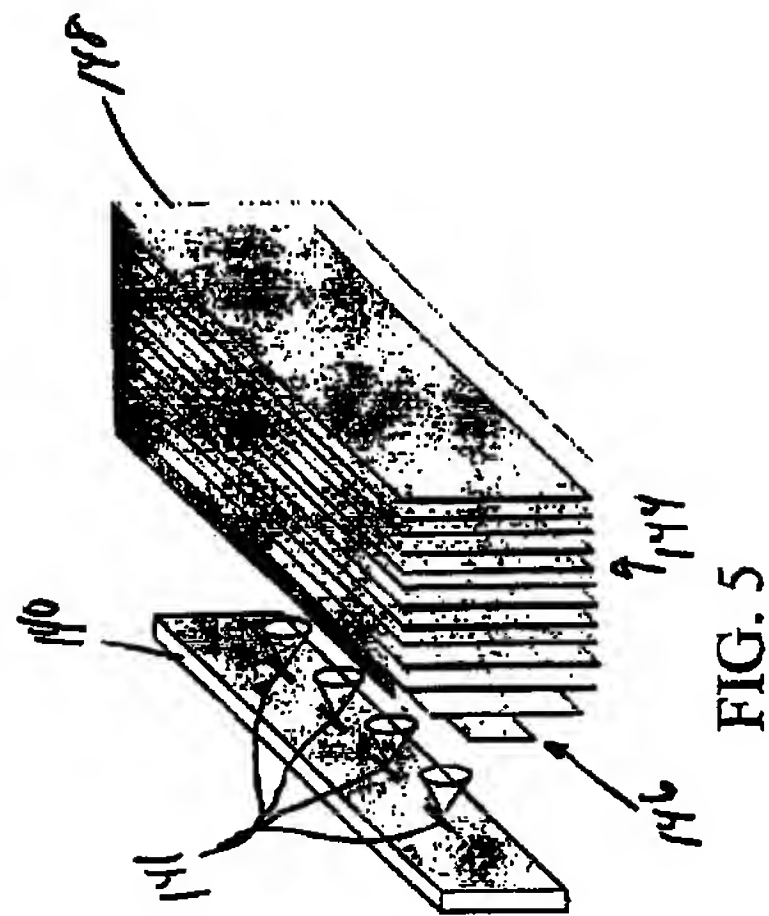


FIG. 4B



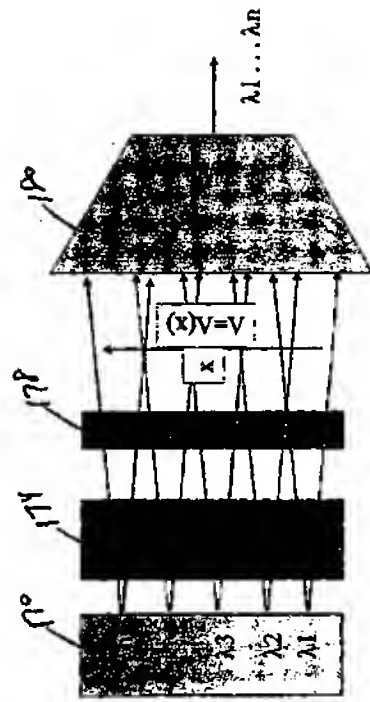


FIG. 9

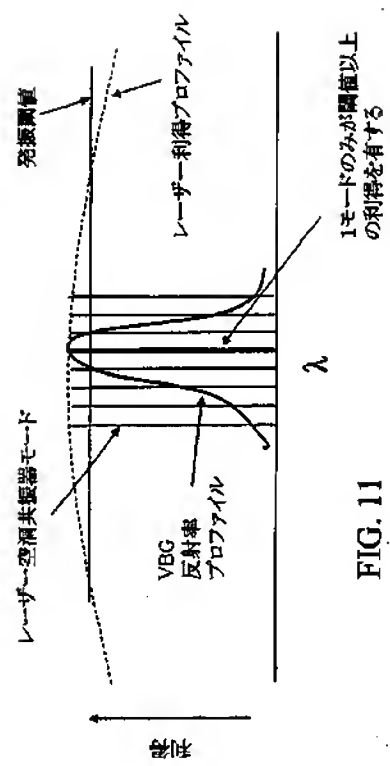


FIG. 11

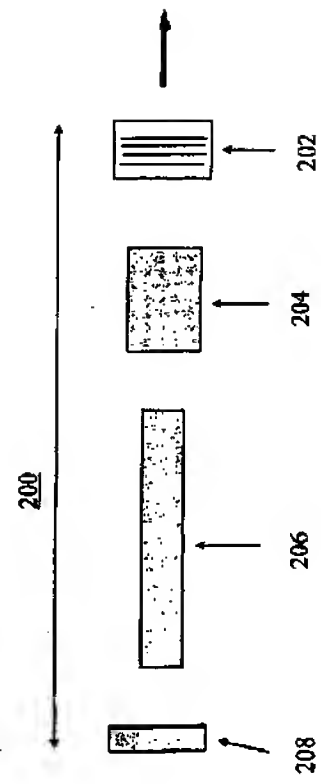
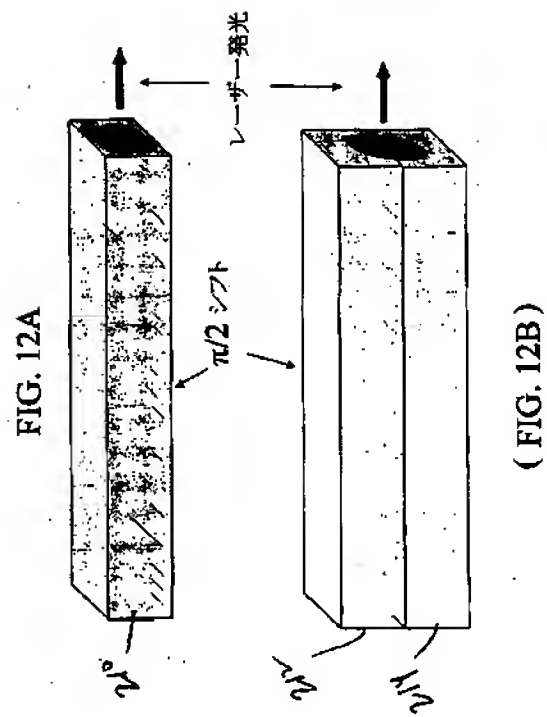


FIG. 10



( FIG. 12B )

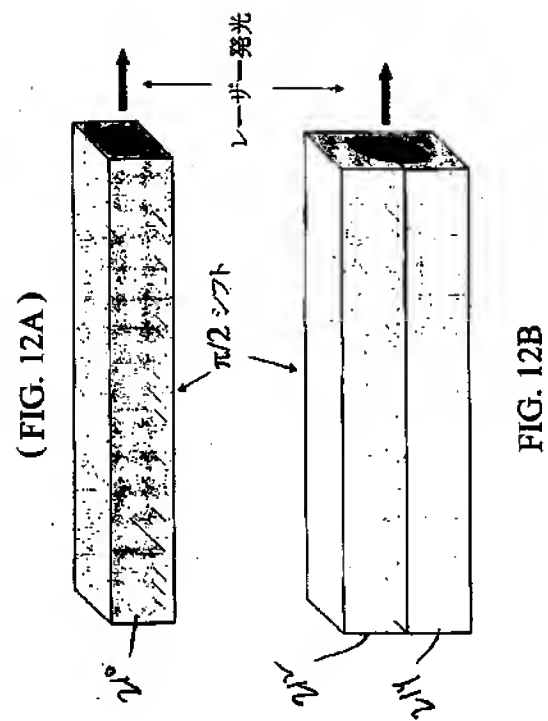


FIG. 12B

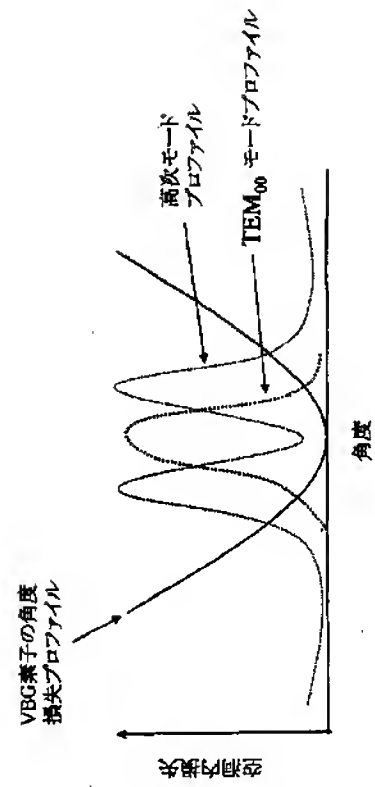


FIG. 13

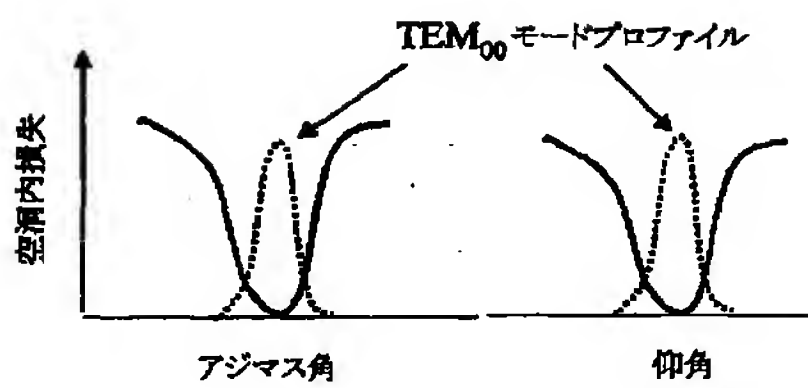


FIG. 14A

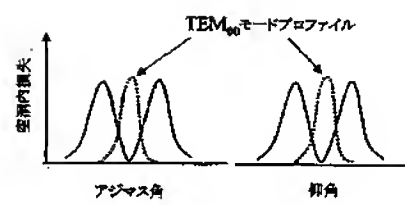


FIG. 14C

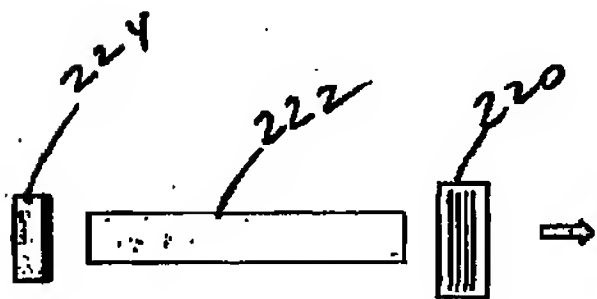


FIG. 14B

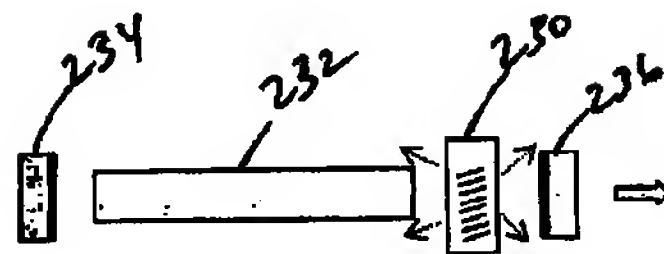
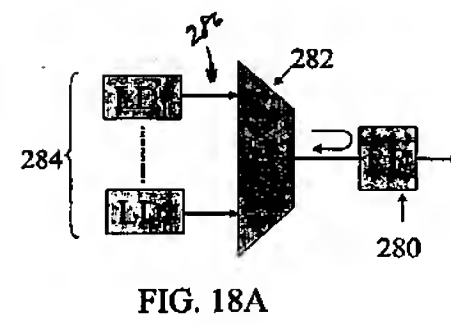
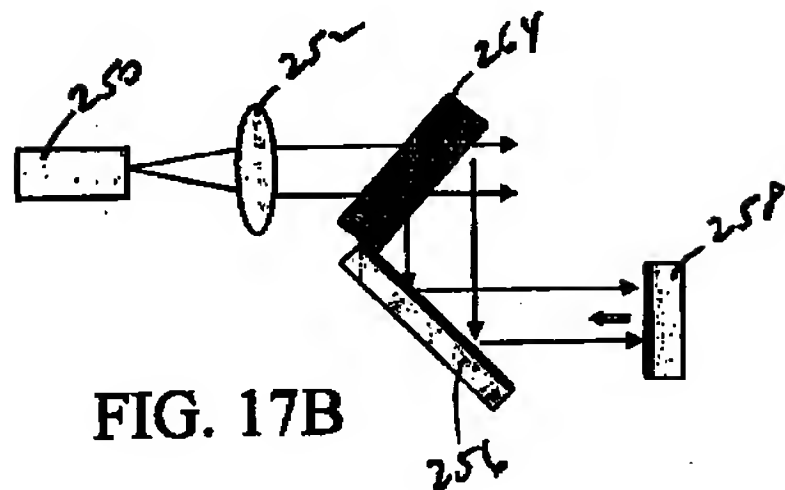
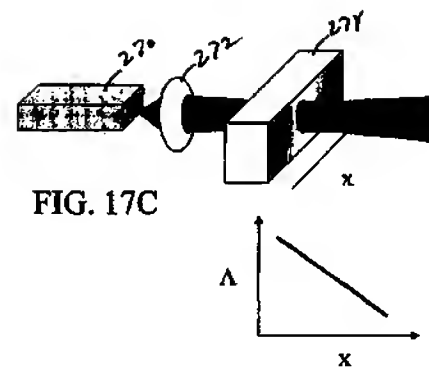
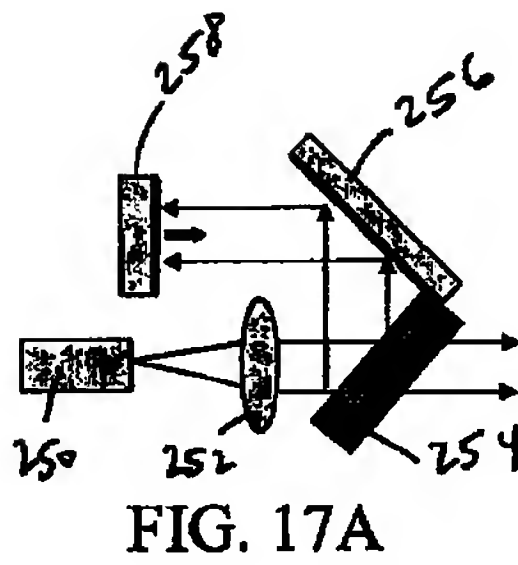
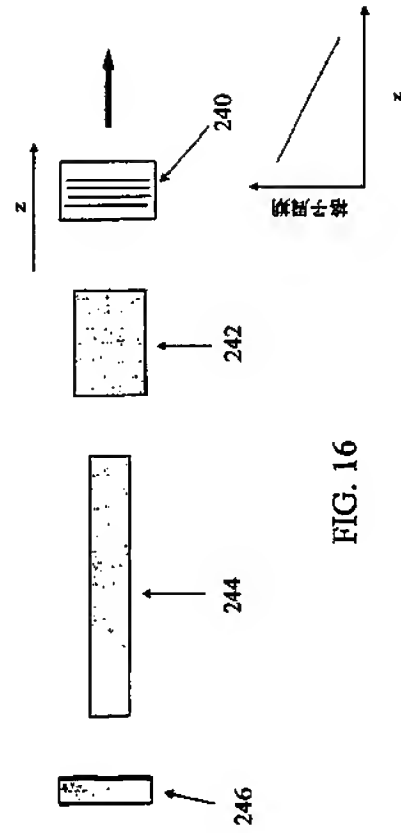
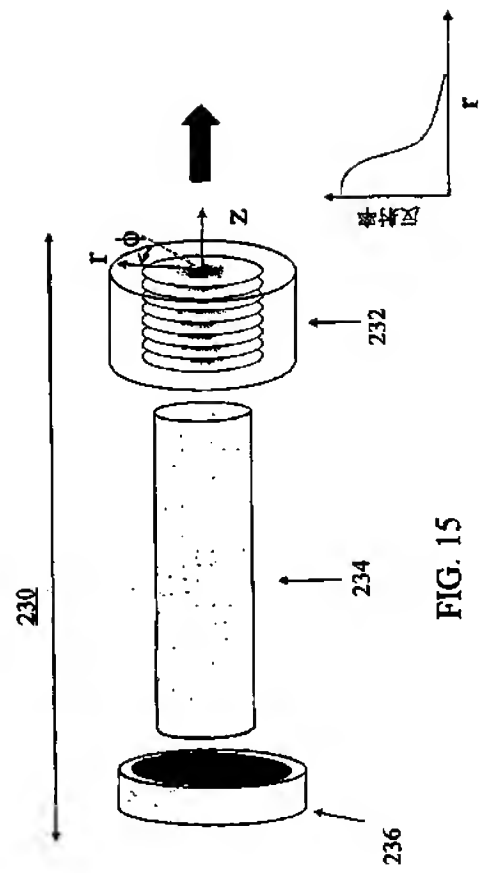


FIG. 14D



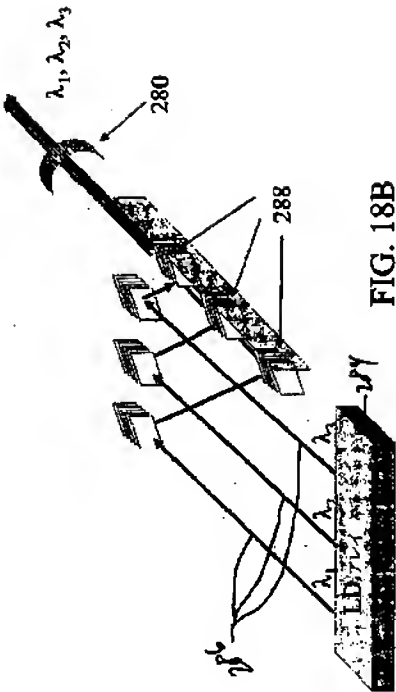


FIG. 18B

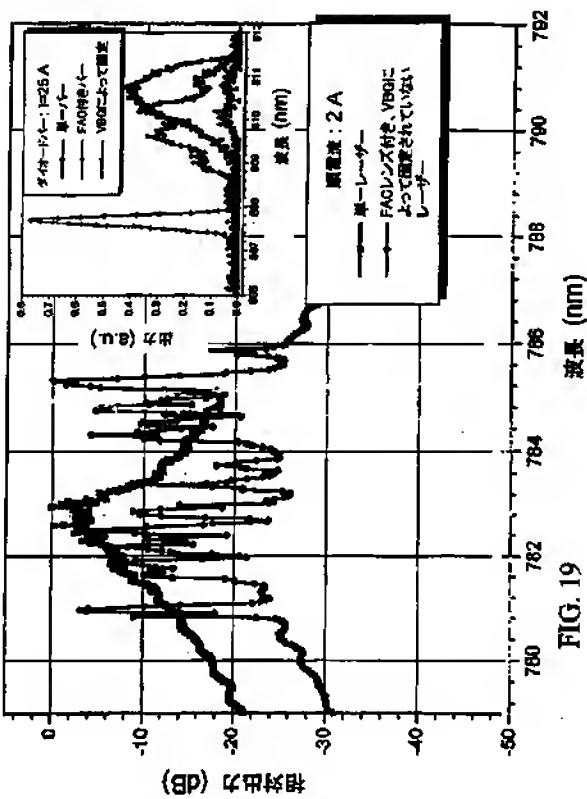


FIG. 19

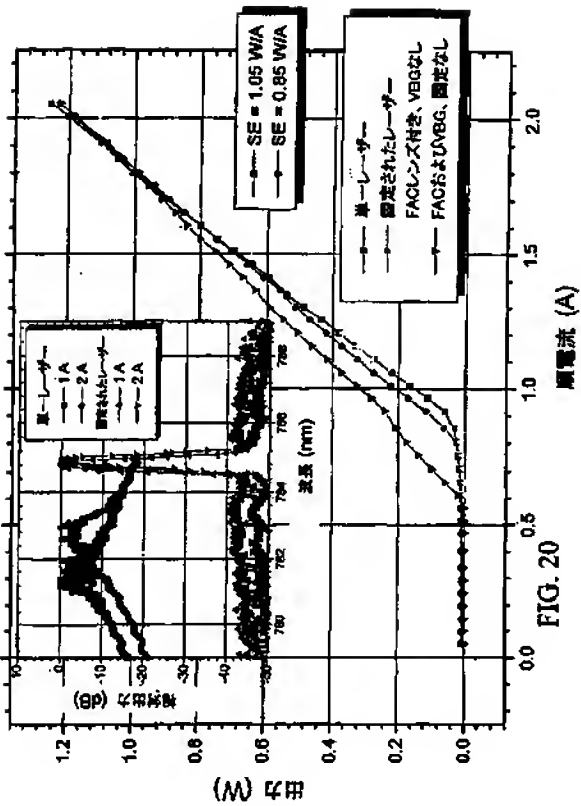


FIG. 20

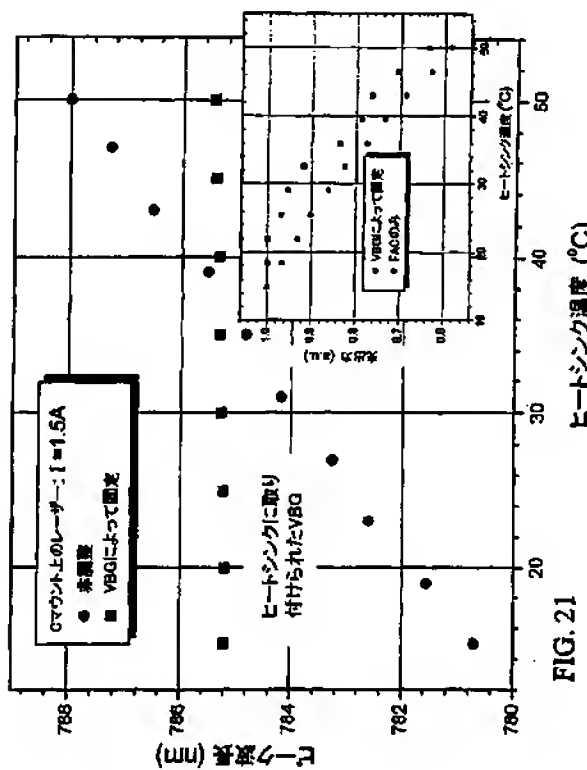


FIG. 21

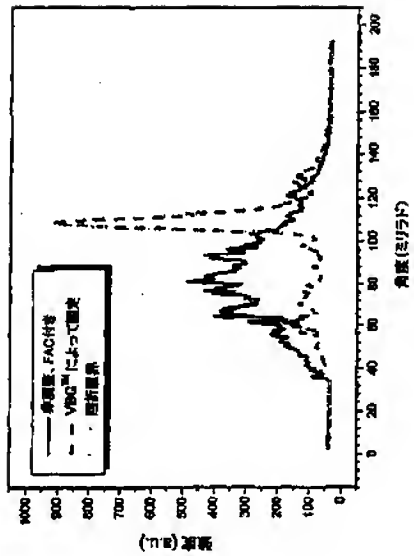


FIG. 22

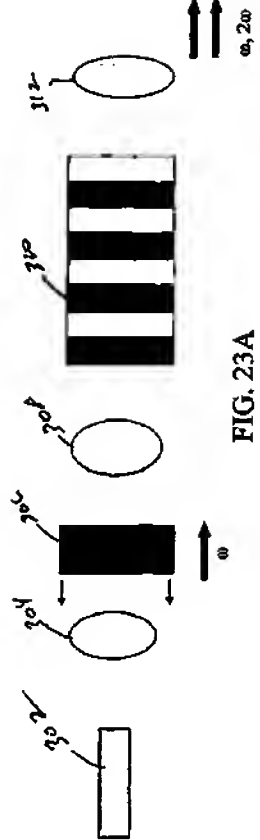


FIG. 23A

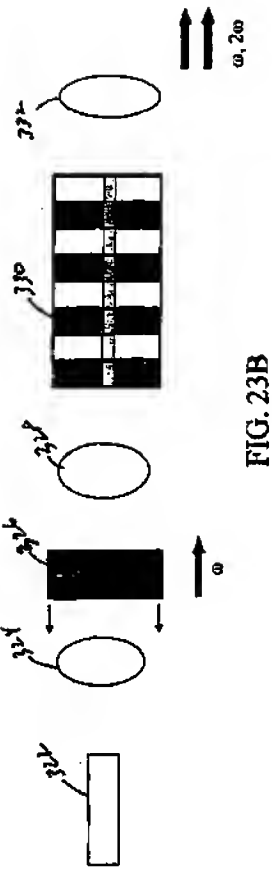


FIG. 23B

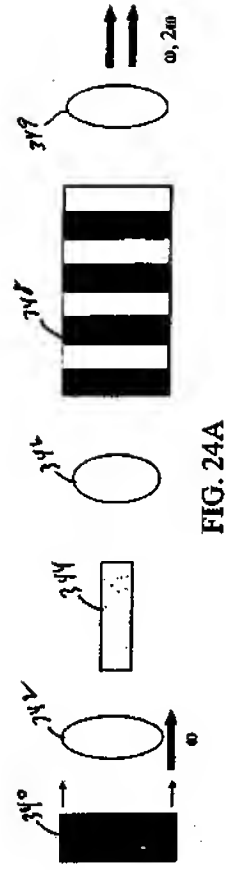


FIG. 24A



FIG. 24B

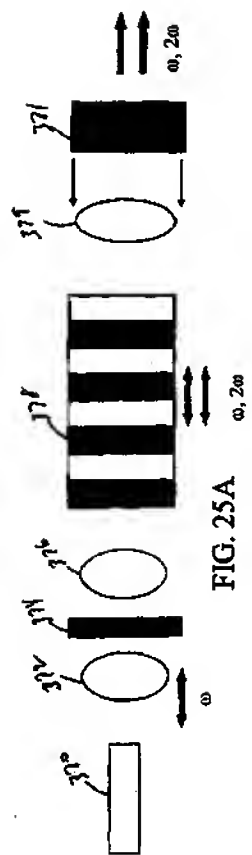


FIG. 25A

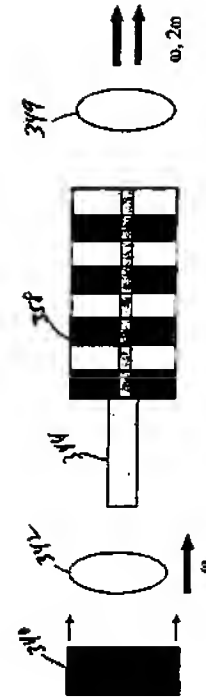


FIG. 24C

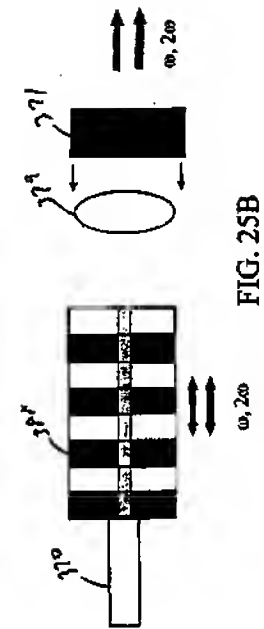


FIG. 25B



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/21491

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01S 3/08

US CL : 372/102

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 372/102,19,9,22,32

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 6,414,973 B1 (HWU et al.) 02 July 2002 (02.07.2002), see entire document.	1-19,21-26,31,32,34-37,46,48-51,53-55 ----- 33,38-45,47,60-64 57-59 ----- 43,47,60-64
X — Y	US 2002/0045104 A1 (EFIMOV et al.) 18 April 2002 (18.04.2002), see entire document.	33 ----- 38-45 57-59 ----- 43,47,60-64
Y	US 6,385,219 B1 (SONODA) 07 May 2002 (07.05.2002), see entire document.	33
Y,P	US 2003/0214700 A1 (SIDORIN et al.) 20 November 2003 (20.11.2003), see entire document.	38-45
Y	US 6,198,759 B1 (BRODERICK et al.) 06 March 2001 (06.03.2001), see entire document.	63
Y	US 6,529,675 B1 (HAYDEN et al.) 04 March 2003 (04.03.2003), see entire document.	64
A	US 6,586,141 B1 (EFIMOV et al.) 01 July 2003 (01.07.2003), see entire document.	1-64



Further documents are listed in the continuation of Box C.



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"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search 12 July 2005 (12.07.2005)	Date of mailing of the international search report 19 JUL 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer JOSE DBES <i>Shawn J. Hope</i> Telephone No. 571-272-1569

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/21491

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2001/0016099 A1 (SHIN et al.) 23 August 2001 (23.08.2001), see entire document.	1-64

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(81) AP(BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), EA(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), EP(AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OA(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG), AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

(72)

( ) 5F172 NN01 NN02 NN09 NR05  
5F173 SE01 SF54 SF76